

REMARKS

Applicants respectfully request reconsideration of the present in view of the reasons that follow.

No claim is amended. Claims 9-14, 18, and 33-35 are now pending for examination. Claims 15-17, 19-22, 28-29 and 32 remain withdrawn.

Claim Rejections under 35 U. S. C. § 103

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herchen et al. (US 5,819,434, hereinafter “Herchen”). Claims 10-14, 18 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herchen in view of Nguyen (US 6,565,661, hereinafter “Nguyen”). Applicants respectfully traverse for at least the reasons that follow.

Independent claim 9 recites “a shower plate having a plurality of ejection holes adapted to eject a gas, wherein each of the plurality of ejection holes increases in diameter as going outward of the shower plate.” One advantage of the claimed features is that the uniformity of the gas flux in the shower plate may be significantly improved.

In contrast to the claimed invention, Herchen is directed to promote an even etch rate by improving stability of thermal equilibrium of a gas distribution plate (GDP) and eliminating a first wafer effect. (Herchen, Abstract) The Herchen GDP requires “a thinner central portion 22 having fewer and smaller diameter apertures 26 formed therethrough and a thicker circumferential portion 24 having more and larger apertures 28 formed therethrough” for reducing thermal mass and restricting gas flow at central area. (Column 4, Lines 52-67).

Applicants respectfully submit that features of plate for obtaining an even etch rate is inherently different from those for uniform gas flux. In other words, if Herchen’s device were modified by arranging apertures each increasing in diameter as going outwards of the shower plate as suggested by the Office Action, such a modified device would have failed to provide an even etch rate, the object to which Herchen is directed. Thus, Applicants respectfully submit that there is no motivation to modify Herchen in the way that suggested by the Office

Action, for such a modification would render Herchen invention unsatisfactory for its intended purpose. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

Nguyen is cited for disclosing other features of the claims, but fails to cure the deficiencies of Herchen as explained above.

In addition, Applicants respectfully disagree that “the uniformity advantage is expected from the prior arts discussed above,” as alleged in Paragraph 6 of the Office Action. As shown in Figures 6 and 9, non-limiting embodiments of the claimed features provide significant improvement on gas flux uniformity, compared to that of prior art technology. Specifically, as shown in Figure 9 and described in the third paragraph on Page 16 of the Specification, an arriving gas distribution of 0.9% uniformity can be obtained in the non-limiting example of the claimed invention. In sharp contrast, the conventional structure only provides a uniformity of 10.9%, significantly lower than the that of claimed invention. Both Herchen and Nguyen are *silent* on the uniformity of the gas distribution obtained and *fail* to support the above mentioned arguments of the Office Action.

Independent claim 12 recites all the limitations of claim 1, and thus are patentable for at least the same reasons.

Claims 10-11 and 33-34 depend from claim 9, and thus are patentable for at least the same reasons. Claims 13-14, 18 and 35 depend from claim 12, and thus are patentable for at least the same reasons.

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment,

to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date

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By



FOLEY & LARDNER LLP

Customer Number: 22428

Telephone: (202) 945-6014

Facsimile: (202) 672-5399

George C. Beck

Attorney for Applicants

Registration No. 38,072